



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 034169.WO		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA416
International application No. PCT/NL2004/000796		International filing date (day/month/year) 12.11.2004	Priority date (day/month/year) 25.11.2003	
International Patent Classification (IPC) or national classification and IPC B09B3/00, B03B9/06, C22B43/00				
Applicant VERMEULEN, Anthonius Hendricus Maria				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 9 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  08.06.2005		Date of completion of this report  04.11.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  van der Zee, W  Telephone No. +31 70 340-2797 		

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000796

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

6, 7

as originally filed

1-5, 5A

received on 19.08.2005 with letter of 18.08.2005

**Claims, Numbers**

1-16

received on 19.08.2005 with letter of 18.08.2005

**Drawings, Sheets**

1/1

as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify)*:
- ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify)*:
- ☐ any table(s) related to sequence listing *(specify)*:

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000796

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	1-16
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/NL2004/000796

**Re Item I**

**Basis of the report**

The examination is carried out on the following application documents:

Description, pages: 6, 7 as originally filed,  
Drawings, sheets: 1/1 as originally filed.

Description, pages: 1-5, 5A as filed with letter of 18.08.05, received 19.08.05,  
Claims, No: 1-16 as filed with letter of 18.08.05, received 19.08.05.

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Reference is made to the following document:

D1: US-A-5569154

2. The following is stated.

2.1 The document D1 discloses (the references in parentheses applying to this document) a device for removing mercury from mercury-containing residues (see column 1, lines 7-11), comprising a gastight (see column 5, lines 20-22) screw conveyor (22) provided with an inlet (12) for mercury-containing residues, first heating means (34) for heating admitted mercury-containing residues and causing mercury to evaporate (see column 6, lines 10-20), an outlet conduit (46) for mercury vapour-containing gas (see column 6, lines 21-24) and an outlet channel (see column 5, lines 38-42) for mercury-free residues, the device being provided with pump means (66)

for applying an underpressure in the screw conveyor (22) and discharging mercury vapour-containing gas therefrom (see column 6, lines 21-24), and with a distillation column (86) provided with cooling means (see column 7, lines 18-22) to cause condensation (see column 6, lines 25-26 and column 7, lines 16-29) of mercury vapour from the mercury vapour-containing gas discharged with the pump means (66).

The subject-matter of claim 1 therefore differs from this known device in that the outlet conduit is provided with second heating means for heating the mercury vapour-containing gas.

The subject-matter of claim 1 is therefore novel and claim 1 meets the requirements of Article 33(2) PCT.

The problem underlying claim 1 is to prevent too strong a cooling of the mercury-containing gas outside the screw conveyor, cf. page 3, line 36 - page 4, line 2.

The solution in accordance with claim 1 is the outlet being provided with second heating means for heating the mercury vapour-containing gas.

The combination of the further features of claim 1 is not disclosed by any of the cited prior art documents.

The skilled person is not hinted at providing the outlet conduit with second heating means for heating the mercury vapour-containing gas in order to solve the problem underlying claim 1.

The subject-matter of claim 1 thus involves an inventive step and claim 1 meets the requirements of Article 33(3) PCT.

- 2.2 Under reference to point 2.1 above, it is stated that the document D1 discloses (the references in parentheses applying to this document) a method for removing mercury from mercury-containing residues (see column 1, lines 7-11) with a device as claimed in claim 1, comprising the steps of

- (i) admitting mercury-containing residues into a gastight screw conveyor (22) (see column 5, lines 54-57),
- (ii) heating the admitted mercury-containing residues and causing mercury to evaporate (see column 6, lines 10-20),
- (iii) applying an underpressure in the screw conveyor (22) and discharging mercury vapour-containing gas therefrom (see column 6, lines 21-24),
- (iv) causing mercury to condense from the mercury vapour-containing gas discharged with the pump means (66) (see column 6, lines 25-26 and column 7, lines 16-29), and
- (v) collecting mercury in a condensed state (see column 7, lines 25-26).

The subject-matter of claim 11 therefore differs from this known method in heating the discharged mercury vapour-containing gas.

The subject-matter of claim 11 is therefore novel and claim 11 meets the requirements of Article 33(2) PCT.

The problem underlying claim 11 is to prevent too strong a cooling of the mercury-containing gas outside the screw conveyor, cf. page 3, line 36 - page 4, line 2.

The solution in accordance with claim 11 is heating the discharged mercury vapour-containing gas.

The combination of the further features of claim 11 is not disclosed by any of the cited prior art documents.

The skilled person is not hinted at heating the discharged mercury vapour-containing gas in order to solve the problem underlying claim 11.

The subject-matter of claim 11 thus involves an inventive step and claim 11 meets the requirements of Article 33(3) PCT.

3. Claims 2-10 and 12-16 are all truly dependent claims and also meet the requirements of Article 33(1) to 33(5) PCT.